

Motorola[®] HOME Radio

SERVICE MANUAL

MODELS
5R11AU
5R12AU
5R13AU
5R14AU
5R15AU
5R16AU

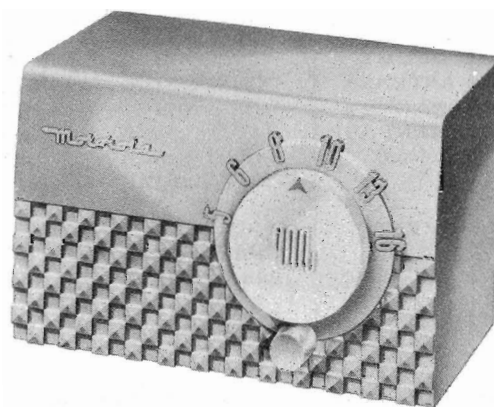
CHASSIS
HS-281

GENERAL INFORMATION

TYPE - AC-DC table model superheterodyne receiver with loop antenna.

RECEIVER MODELS - Model	Color
5R11AU	Walnut-Mahogany
5R12AU	Ivory
5R13AU	Maroon
5R14AU	Gray
5R15AU	Green
5R16AU	Yellow

TUBE COMPLEMENT - Type	Function
12BE6	Converter
12BA6	IF Amplifier
12AT6	Det, AVC & AF Amp
50C5	Power Amplifier
Rectifier	Selenium Type



TUNING RANGE - 535 to 1620 Kc IF - 455 Kc

POWER SUPPLY - 117 volts AC or DC; 35 watts

INSTALLATION & OPERATING INSTRUCTIONS

ON-OFF SWITCH & VOLUME. Operated with the small lower knob. NOTE: To operate from DC, the line plug must be inserted in the electrical outlet for correct polarity. If the receiver does not function, reverse the plug. When operating from AC, reversal of the line plug may improve reception.

TUNING. Stations are tuned in with the large upper knob.

ANTENNA. The built-in loop antenna provides satisfactory reception in most locations. When receiving a distant or weak station, rotate the receiver slightly to get maximum signal pick-up. If additional pick-up is necessary, connect an external antenna by following the instructions printed on the rear panel. CAUTION: Never connect the chassis to a water pipe, radiator or other ground.

SERVICE NOTES

The chassis of this receiver is isolated from the power line by a capacitor to eliminate the shock hazard, when handling the chassis outside the cabinet. However, as an additional precaution when aligning or servicing the receiver from AC, an isolation transformer should be inserted between the power line and the receiver.

TO REMOVE CHASSIS FROM CABINET:

1. Pull off the two control knobs from the front of the re-

ceiver.

2. Remove the two split plugs which hold the loop to the cabinet.

3. Remove the two hex head screws at the rear edge of the chassis.

4. Slide the chassis from the cabinet.

4545 AUGUSTA BOULEVARD

Motorola Inc.

CHICAGO 51, ILLINOIS

ALIGNMENT

NOTE: If AC power is used, it is recommended that an isolation transformer be placed between the power line and the receiver to avoid hum and electrical shocks. If an isolation transformer is not available, connect the low side of the signal generator to B- through a .1 mf capacitor.

1. Connect a low range output meter across the speaker voice coil.
2. Connect the low side of the signal generator to B-.
3. Set the signal generator for 400 cycle, 30% modulation.

4. Turn the receiver volume control to maximum.

5. Use a small fibre screwdriver for aligning the IF and diode transformers.

6. As stages are brought into alignment, reduce the signal generator output to a level which produces less than .40 volts (.05 watt) across the voice coil to avoid overloading the receiver.

7. See Figure 1 for adjustment locations and the following chart for procedure.

ALIGNMENT CHART

STEP	DUMMY ANTENNA	GENERATOR CONNECTION	GENERATOR FREQUENCY	GANG SETTING	ADJUST	REMARKS
IF ALIGNMENT						
1.	.1 mf	Grid of conv. (pin 7, 12BE6)	455 Kc	Fully open	1, 2, 3 & 4 (IF cores)	Adjust for maximum.
RF ALIGNMENT						
2.	.1 mf	Grid of conv. (pin 7, 12BE6)	1620 Kc	Fully open	5 (Osc)	Adjust for maximum.
3.	-	Radiation loop*	1400 Kc	Tune for max	6 (Ant)	Adjust for maximum.

*Connect generator output across 5" diameter, 5 turn loop and couple inductively to receiver loop. Keep loops at least 12" apart.

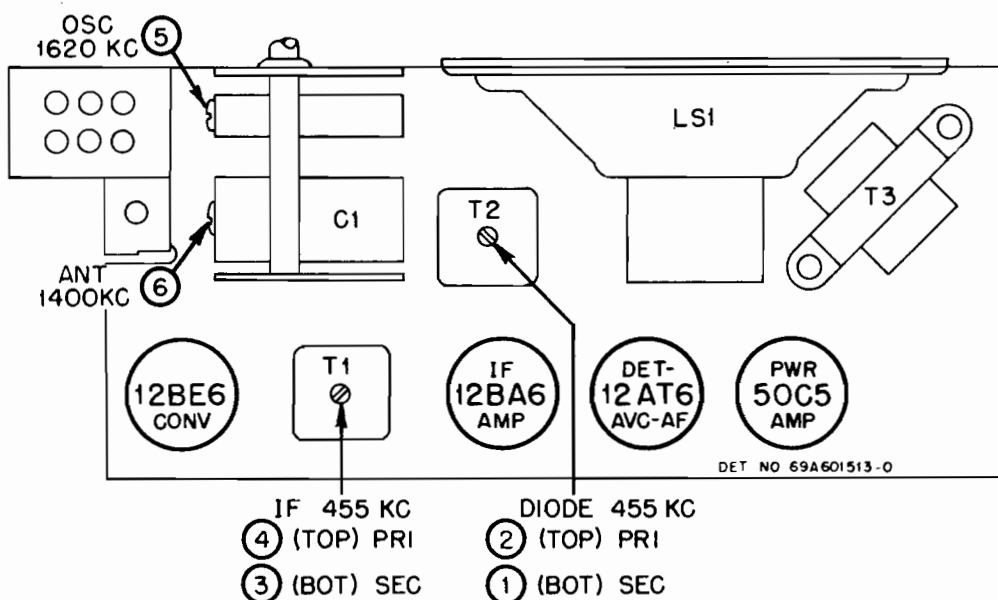


FIGURE 1. TUBE AND TRIMMER LOCATIONS

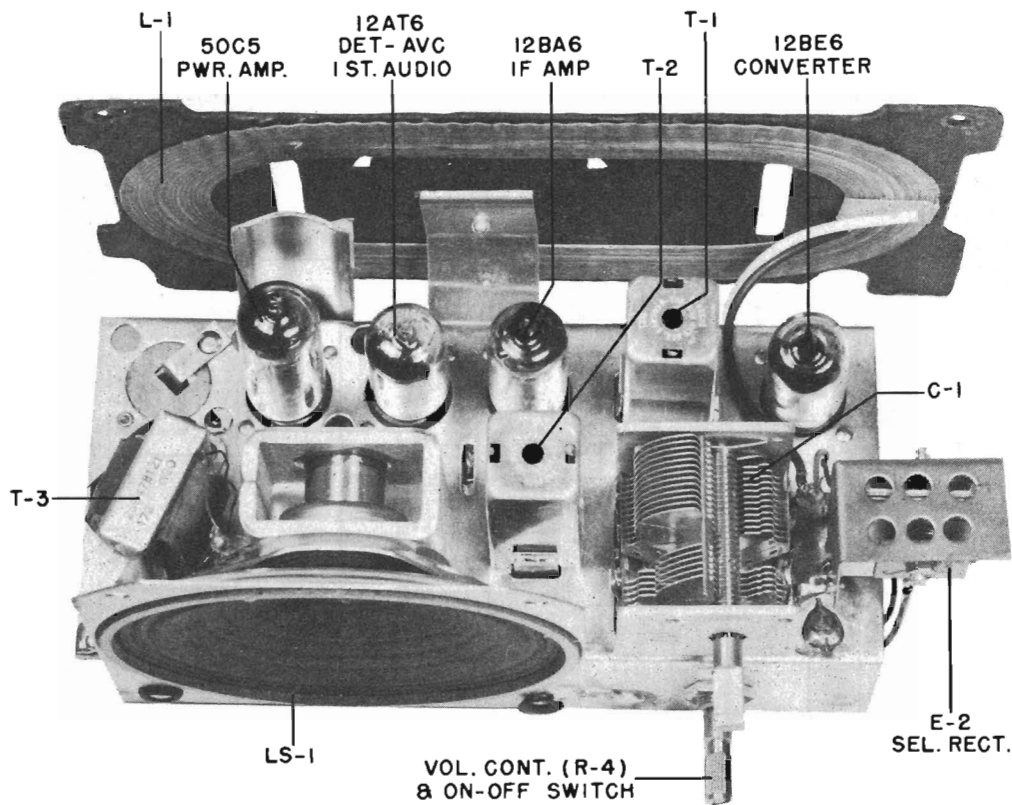


FIGURE 2. TOP VIEW OF CHASSIS

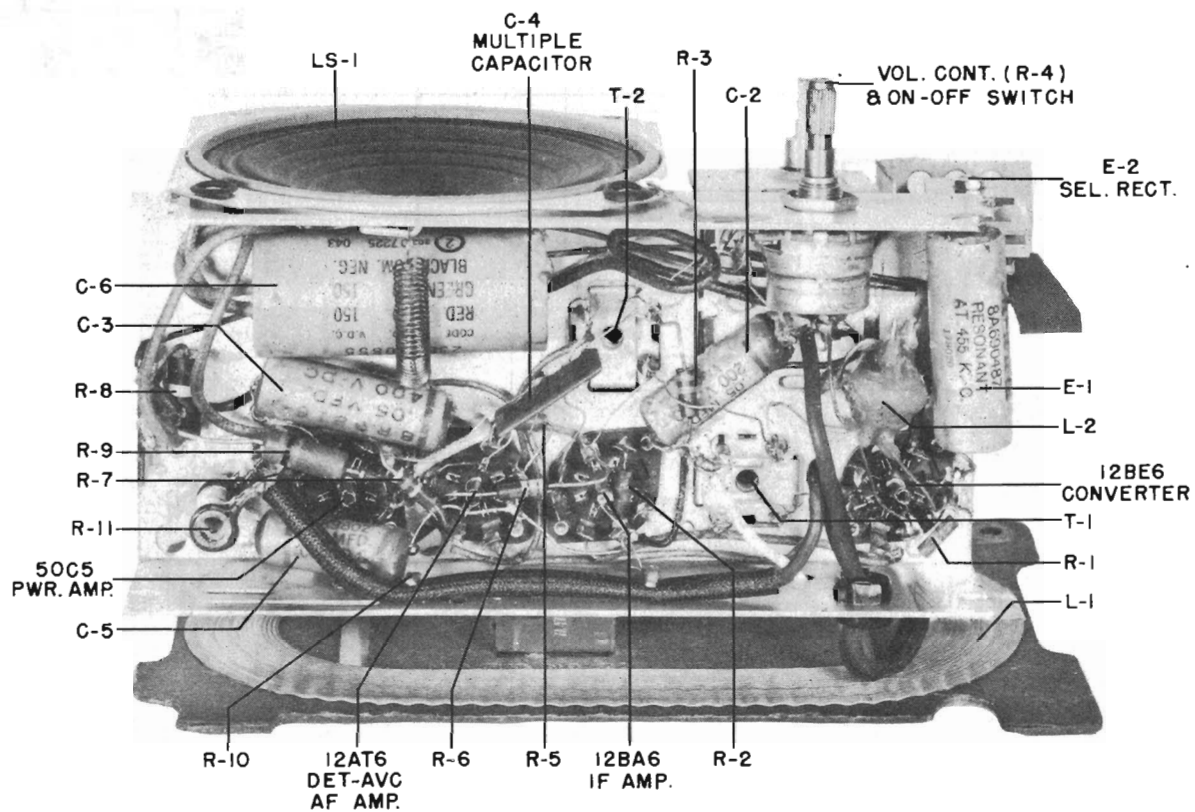


FIGURE 3. BOTTOM VIEW OF CHASSIS USING MULTIPLE CERAMIC CAPACITOR PLATE

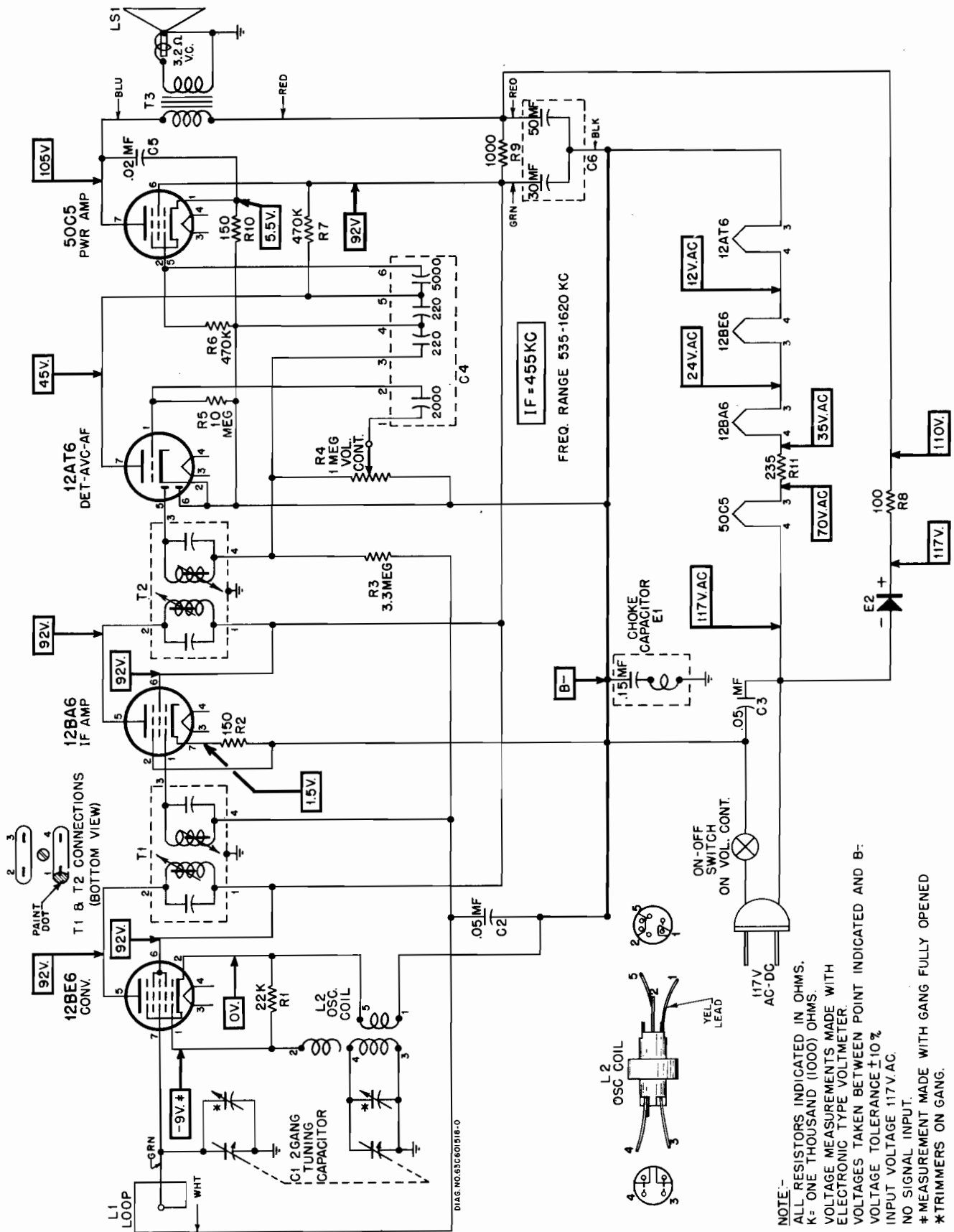


FIGURE 4. SCHEMATIC DIAGRAM OF CHASSIS USING MULTIPLE CERAMIC CAPACITOR PLATE

REPLACEMENT PARTS LIST

NOTE: When ordering parts, specify model number of set in addition to part number and description of part.

Ref. No.	Part Number	Description	List Price	Part Number	Description	List Price
CHASSIS PARTS - ELECTRICAL				CHASSIS PARTS - MECHANICAL		
C-1	19B600458	Variable, 2 gang: with pulley	2.55	7A478118	Bracket, loop mtg	.05
C-2	8R9821	Paper: .05 mf 200V	.20	7B601649	Bracket, rectifier mtg	.20
C-3	8R9816	Paper: .05 mf 400V	.20	43A692012	Bushing, strain relief (line cord) ..	.05
C-4	21B482847	Ceramic, multiple: 2000 mmf, 220 mmf, 220 mmf, 5000 mmf..	.65	43K692013	Bushing, retainer: strain relief (line cord)	.05
C-5	8R9802	Paper: .02 mf 400V	.20	42A485548	Clip, coil can mtg (for T-1 & T-2)	.20
C-6	23B600855	Electrolytic: 50-30 mf/150V..	1.10	30K680352	Cord, line and plug: 6 ft long	.70
CAPACITOR-RESISTOR				5A484268	Grommet, rubber (spkr mtg).....	.20
CR-1	21B601007	Capacitor-Resistor: 7 lead; 2000 mmf, 220 mmf, 5000 mmf, 110 mmf, 110 mmf, 6.8 meg, 470,000 ohms, 470,000 ohms..	.85	14A478119	Insulator, fibre (loop bracket mtg).....	.15
CHOKE & CAPACITOR				2S7051	Nut, hex: 3/8-32 x 9/16; stl; cad pl (volume control mtg).....	.15
E-1	8A690487	Choke & .15 mf paper capacitor	.30	5S7771	Rivet: .088 x 3/16; stl; nkl pl (tube socket mtg)	.50
RECTIFIER				5S7707	Rivet: .122 x 5/32; stl; nkl pl (output trans and shield mtg).....	.50
E-2	48B791092	Rectifier, selenium	1.40	5S7703	Rivet: .122 x 7/32; stl; nkl pl (loop bracket and speaker mtg).....	.50
COILS				3S490507	Screw, sheet metal: #6 x 1; plain hex head; stl; cad pl (rectifier mtg)	.15
L-1	24K601662	Antenna Loop and Panel Assem.	.95*	3S7247	Screw, machine: 6-32 x 3/16 slotted hex head; locking type; stl; cad pl (gang mtg)	.15
L-2	24B680364	Oscillator coil	.90	26A478117	Shield, electrostatic (on rear of chassis)	.55
SPEAKER				9A472534	Socket, tube: 7-prong	.15
LS-1	50B690661	Speaker: 4" PM; 3.2 ohm VC... exch 1.95	2.60*	41A73996	Spring, tension (electrolytic mtg)..	.05
Resistors				46A478145	Stud, tri-mount (back mtg to chassis)	.15
Note: All resistors are insulated carbon type unless otherwise specified.				14A11493	Washer, shoulder: fibre (loop brkt mtg)	.35
R-1	6R6028	22,000 20% 1/2W	1.20	CABINET PARTS		
R-2	6R3992	150 20% 1/2W	1.20	16K600181	Cabinet, table model: molded; walnut-mahogany finish (5R11AU).....	2.85*
R-3	6R2118	3.3 meg 20% 1/2W	1.20	16E600157	Cabinet, table model: molded; ivory finish (5R12AU)	3.50*
R-4	18K600449	Volume control: 1 meg; with switch	1.20	16K600183	Cabinet, table model: molded; maroon finish (5R13AU)	3.50*
R-5	6R2109	10 meg 20% 1/2W	1.20	16K600184	Cabinet, table model: molded; gray finish (5R14AU)	3.50*
R-6	6R6032	470,000 20% 1/2W	1.20	16K600185	Cabinet, table model: molded; green finish (5R15AU)	3.50*
R-7	6R6032	470,000 20% 1/2W	1.20	16K600186	Cabinet, table model: molded; yellow finish (5R16AU)	3.50*
R-8	6R6415	100 10% 1W	.20	36B600485	Knob, tuning: ivory (5R11AU, 5R13AU, 5R14AU, and 5R15AU)	.25
R-9	6R3953	1000 20% 1W	.20	36K600486	Knob, tuning: red (5R12AU).....	.25
R-10	6R3992	150 20% 1/2W	1.20	36K600487	Knob, tuning: blue (5R16AU).....	.25
R-11	17A601647	Wirewound: 235 10% 5W.....	.75	36B600544	Knob, volume control: walnut (5R11AU)	.10
TRANSFORMERS				36K600545	Knob, volume control: ivory (5R12AU) ..	.10
T-1,2	24B485553	IF and Diode, 455 Kc: complete with capacitors, cores and shield	.95	36K600546	Knob, volume control: maroon (5R13AU) ..	.10
T-3	25K680345	Output Transformer	1.05	36K600547	Knob, volume control: gray (5R14AU)..	.10
				36K600548	Knob, volume control: green (5R15AU) ..	.10
				36K600549	Knob, volume control: yellow(5R16AU) ..	.10

*Plus Federal Excise Tax At Current Rate

<u>Part Number</u>	<u>Description</u>	<u>List Price</u>	<u>Part Number</u>	<u>Description</u>	<u>List Price</u>
3S476083	Screw, machine: 6-32 x 5/16; slotted hex head; stl; cad pl; locking type (chassis mtg)doz	.15	38A25507	Plug, split (back mtg to cabinet)doz	.15
			11M488253	Tape, aluminum foil: 2-1/2" wide..ft	.10

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

